Original Article

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Improving Patient Safety: Residents Insights on Handover Practices in Tikur Anbessa Hospital

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ABSTRACT

Background: *A patient handover refers to the transfer of care from one care provider to the next and involves three aspects: a transfer of information, responsibility, and authority. Researchers and hospitals have been implementing different standardized models of handing over patients and training their staff on how to use this model.*

Objective*: To assess the knowledge, attitude, and practice of residents currently doing their residency at TASH toward the effectiveness of the presently implemented handing-over system of admitted patients and the use of standardized methods.*

Methods: *A cross-sectional survey was conducted, which included current residents at AAU, School of Health Science, using a structured questionnaire. Residents who had their previous attachment at the in-patient units of TASH from 2018-2021 were included. The study was conducted from August 2021 to November 2021. Study participants were given a consent form to participate and asked to complete a structured questionnaire online. The data collection instruments were coded, and data quality was checked daily. Data entry and cleaning were done using Microsoft Excel 2013, then exported to the SPSS version 26.0 statistical package for analysis. Outcomes were analyzed using descriptive analysis.*

Result: *This study showed that residents were knowledgeable (n=245, 90.8%) about the consequences of poor handover on patient outcomes. However, they lacked knowledge (n=245, 3.1%) regarding standardized methods of handing over patients. Their attitude towards the current method they were using to handover patients was not good as well (n=245, 72.7%). Rather, they showed a good attitude (n=245, 87.6%) towards change to a standardized and proper way of handover. They also felt positive about the possible training of all residents on these standardized methods. When it comes to practice, this study showed a significant number of residents reported having poor practice (n=245, 42.5%).*

Recommendations and Conclusion: *This survey has shown that poor patient handovers during the end of care are common in TASH and, at times, lead to bad patient outcomes. It is, therefore, important to train and develop a system where standardized handovers are undertaken. Further studies can be done to compare whether these new methods decrease the rate of patient harm due to poor handover.*

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1. Introduction

Studies show medical errors affect one in 10 patients worldwide. One study shows that 180,000 people die each year partly as a result of iatrogenic injury.[1] In the US, Medical errors resulting in patient harm have become the major cause of death.[2,3] Among the different types of errors, miscommunications during transitions of care are the main cause.[4-12] In Ethiopia, there is limited information regarding health professionals' ethics and surgical and medical error trends. One survey showed a prevalence of 57.6%, but all were related to medication errors in this study.[13]

A patient handover refers to the transfer of care from one care provider to the next.[14] This entails three important facets: a transfer of information, responsibility, and authority.[15,16] Handover, therefore, is a critical clinical and organizational process that occurs at all hospital levels, from an individual level (e.g., between nurses) [17] to an organizational level (e.g., between hospitals during patient transfers).[18]

Communication errors are a leading cause of sentinel events, unexpected occurrences involving death or serious physical injury, or the risk thereof. [19] The effects of end-of-rotation or service transitions in care may be equally detrimental to patient care but have received substantially less attention.[12] During this transition, one physician permanently transfers the care of an entire list of patients to another physician. Unlike shift handovers, when the original physician resumes care during his/her next shift and the service transition is permanent, the clinician signing out has no further contact with these patients or their new physician.[20] While early studies show patients affected by these transitions suffer increased length of stay (LOS) and cost, [21, 22] multiple large- scale studies have suggested a significant increase in mortality in patients exposed to these transitions.[11, 12]

The organized structure facilitates care, and recent work found that a structured handover template may improve perceived outcomes during resident end-of-shift or end-of-attachment [23]. However, interventions aimed at service handover have not been extensively tested. This study will, therefore, help in understanding the practice and knowledge of residents currently doing their residency in Addis Ababa University, School of Medicine, that have previously attached to places where in-patient service is provided in TASH, towards the effectiveness of currently implemented off-service system from their own most recent experience. The research will also address their knowledge and attitude as to what constitutes a good quality handover, whether they believe there is a gap in the system, and whether other better methods of transferring patients' information need to be put in place.

Hospitals are the places where various methods of communication take place. Multiple healthcare professionals take care of the patients during any patient's treatment period in healthcare settings. Each caregiver working with a patient must provide accurate and updated information to other caregivers.[27] Experts on handovers have recommended that a proper handover must take place in quiet settings, both face-to-face and in written format, using a standardized checklist with active participation on both sides regarding issues not only of what happened but also anticipated events and future plans. It must also have only limited interruptions. Although they have derived this from research in non-healthcare industries, it also pertains to hospitals.[28] It is also recommended that hospitals train their healthcare providers to properly transfer their patients at the end of their shift or

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attachment.[29]

Some key strategies have also been proposed such as (a) Use of standardization methods[30] for instance, with the use of structured templates 31 and communication mnemonics (e.gs. including SBAR, I-PASS, ANTICipate, SIGNOUT)[32] (b) the incorporation of training sessions to train care providers better perform effective handoffs[33,15] for instance, with the use of simulated clinical exercises, and finally (c) the use of tools such as online forms, [34] checklists,[35] and other computerized technologies[30] that can provide a structure to guide healthcare providers to share important information.

This recommendations are derived from the following studies

In one study comparing handover methods, only 2.5% of patient information was retained using the verbal-only handover method, 85.5% was retained when using the verbal with note-taking method, and 99% was retained when a printed handout containing all patient information was used. [36]

A system review on the impact of the communication and patient handover tool SBAR on patient safety was found from eight studies with a before-after design and three controlled clinical trials performed in different clinical settings[26] different patient outcomes were measured, of which eight were reported to be significantly improved. Eleven were described as improved, but no further statistical tests were reported, and six outcomes did not change significantly. This study found moderate evidence for improved patient safety through SBAR implementation, mainly when using structured communication over the phone. However, high-quality research on this widely used communication tool is lacking.[37]

In controlled study by study by Joshua Lee Denson et al., a structured ICU end-of-rotation care transition strategy was implemented with high fidelity.[52] While mortality and LOS were not affected in a pilot study with limited power, this intervention's ambitious strategy holds hope for future trials

One study was done in Indonesia on nurses in the Nursing School of PPNI, West Java, Indonesia, in 2019, where nurses were assessed on their knowledge, attitude, and practice of proper handover criteria mentioned above. Results showed the nurses had good knowledge (n=47, 77%) and positive attitude (n=42, 68.9%) toward patient handover. It also showed nurses with negative attitudes had 5.333 times developed poor clinical handover, and nurses with poor knowledge had 5.280 times poor clinical handover performance.[39]

Another study on medical students in Glasgow, Scotland, assessed the knowledge and attitude towards the standardized handover of patients before training. Subsequently, training was given, and they were reassessed. The post-training assessment showed that their knowledge and attitude improved, and all students agreed or strongly agreed that their ability to perform a structured handover had improved.[40]

Some studies have shown handovers in several hospitals as being remarkably haphazard[41] and formulaic, partial, and cryptic.[42] In addition, several healthcare researchers and practitioners have also highlighted that poor handovers often end in patient harm.[43] These are mentioned in the following paragraphs.

A prospective, observational study using video recording in an academic intensive care unit in Ontario, Canada, evaluated the use of handover transcripts documenting elements of three communication schemes: SBAR (Situation, Background, Assessment, Recommendations);

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SOAP (Subjective, Objective, Assessment, Plan); and a standard medical admission note. The majority of handovers' content consisted of recent and current patient status. The remainder included physicians' interpretations and advice. Questions posed by the incoming physicians accounted for 5.8% (± 3.9%) of the handovers' content. Elements of all three standardized communication schemes appeared repeatedly throughout the handover dialogs with no consistent pattern. For example, segments of SOAP's Assessment were present 5.2 (± 3.0) times in patient handovers; they followed Objective blocks in only 45.9% of the opportunities and preceded Plan in just 21.8%. Some components of communication were occasionally absent. For example, SBAR's Recommendation and admission note information about the patient's Past Medical History were absent from 22 (55.0%) and 20 (50.0%), respectively, of patient handovers.[44]

Most reports of poor handover follow the recent mandatory reduction in working hours for residents in the US, which has resulted in frequent handovers of patients. Increased frequency of patient transfer produces less efficient care. This can result in a longer length of admission and increased use of laboratory tests. A study by Lofren et al. showed transfer of care was associated with a 33% increase in the median length of stay, a 40% increase in the use of total laboratory tests, and a 20% increase in the number of laboratory tests per hospital day.[10]

Some researchers have highlighted the barriers to effective handovers,[14] while others have studied the consequences of poor handovers.[45] The three major handover barriers identified in prior studies were related to communication challenges, [46,15] lack of a standard handover system[47,48] and lack of handover training for healthcare providers.[33] For example, Arora et al.[49] described that handover communication was mostly influenced by content omissions either related to medications, treatments, tests, consults, or active medical problems and failure-prone communication processes due to the absence of face-to-face communication, double sign-outs (night floats), and illegible/unclear notes.

Among studies regarding the consequences of poor handover, a survey conducted in 2006 of all resident physicians in internal medicine and general surgery at Massachusetts General Hospital (MGH) concerning the quality and effects of handovers during their most recent in-patient rotations, the residents reported the presence of harm to patients from problematic handovers to be as high as 59%. [7] In this study harm was divided as major and minor. Minor patient harm was defined as a limited clinical consequence such as a need for more frequent monitoring or transient discomfort; it may lead to prolonged hospitalization but without significant organ dysfunction or worsening of clinical condition. Major or significant harm was defined as follows: Significant clinical consequences such as deterioration in clinical status, organ dysfunction, prolonged hospitalization, disability beyond discharge, or death.[8]

Another study done by Joshua L. Denson et al. showed that end-of-rotation resident handovers were significantly associated with an increase in both unadjusted and adjusted all-cause hospital mortality.[12] Although improved by the 2011 ACGME duty-hour regulations, a trend toward higher mortality remained following resident handover. A follow-up study by the same researcher showed among patients admitted to internal medicine services in 10 US Veterans Affairs hospitals, end-of-rotation transition in care was associated with significantly higher in-

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hospital mortality in an unrestricted analysis that included most patients.[11]

Considering the bad outcomes of a poor transition of care, a standardized system should be in place. However, a survey done by Leora I Horowitz et al. showed that although transfers of care are increasingly frequent, few internal medicine residency programs have standardized transfer-of-care systems in place, and most do not provide formal education in sign-out skills to all residents.[7]

2. Methods and Materials

The study was conducted among current residents at Addis Ababa University, College of Health Science, with previous attachments in the in-patient wards, ER, and ICU at Tikur Anbessa Specialized Hospital (TASH) between August and November 2021. It was an institution-based, cross-sectional survey focused on residents who had worked in the wards, ER, or ICU at TASH from 2018 to 2021.

The study population included residents from multiple specialties: Internal Medicine, Surgery, Pediatrics, Gynecology/Obstetrics, Neurology, Neurosurgery, Emergency Medicine, Urology, Pediatric Surgery, Orthopedic Surgery, and Anesthesiology. Only residents with prior attachment to in-patient services at TASH were included, with the most recent attachment being considered to reduce recall bias. Residents from the aforementioned specialties with previous attachments to TASH wards and residents who consented to participate in the study were included. Residents who declined to participate were excluded from the study.

The sample size was calculated using a single proportion formula with a 95% confidence interval and a 5% margin of error based on a 59% P-value obtained from a related study. This yielded a required sample size of 243 participants. Residents were provided with a consent form and asked to complete a structured questionnaire administered via Google Forms. The questionnaire was adapted from the study "Handoffs Causing Patient Harm: A Survey of Medical and Surgical House Staff," published in The Joint Commission Journal on Quality and Patient Safety in 2008.

3. Result

Study Demographic

Table 1: List of residents

Frequency		Percent	Cumulative Percent
Anesthesia and Critical Care	10	4.1	4.1
Emergency Medicine	25	10.2	14.3
General Surgery	38	15.5	29.8
Gynecology and Obstetrics	37	15.1	44.9
Internal medicine	58	23.7	68.6
Neurology	10	4.1	72.7
Neurosurgery	9	3.7	76.3
Orthopedic Surgery	11	4.5	80.8
Pediatric Surgery	4	1.6	82.4
Pediatrics	37	15.1	97.6
Urology	6	2.4	100.0
Total	245	100.0	

Among these residents, 34.3, 28.6, 28.6, 7.8, and 0.8 percent were first, second, third, fourth, and fifth years in their residency programs. The majority had attachments to in-patient wards, mainly ICU and emergency, in the past 01 month.

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Of the 245 participants, 49% had an attachment to an in-patient within the last 01 month, 22% within the last 1-6 months, 14.7% within the last 6-12 months, and 14.3% had their attachments more than a year back. Among the places of attachment, the wards were the recent place of attachments for most residents (54.3%) followed by the Emergency (24.1%) the ICU (21.6%).

Knowledge assessment

Questions were asked to assess knowledge of proper handover and the consequences of poor handover, and the results are summarized in Table 3.

Table 2: The satisfaction rate of study participants towards the emergency department services in Gondar University Hospital from July 15 to September 15/2021 (n = 195).

Questions	True	False
1. Effective Communication is essential for the Provision of safe patient care	100%(245)	0%
2. Poor handover is a type of ineffective communication	100%(245)	0%
3. Miscommunication is a type of medical error	100% (245)	0%
4. Poor communication can lead to Inaccurate patient plan leading to harm	93.8%(230)	7.2%(15)
5. Poor communication can lead to delays in the transfer of patients to appropriate wards	87.7%(215)	12.3%(30)
6. Poor communication can lead to delays in discharging patients	81.6%(200)	18.4%(45)
7.Poor communication can lead to unnecessary Lab tests	79.5%(195)	20.5%(50)
8. Poor communication can lead to Uninformed patient or caretaker	84.4%(207)	15.6%(38)

With these results, the overall score regarding knowledge of proper handover and the consequences of poor handover was 90.87%. This shows residents have good knowledge of this matter. However, when knowledge of standardized patient handing-over methods was assessed, the results were different.

Only 15.9% of the residents were aware of the SBAR method, but none were aware of other methods. This shows that residents have poor knowledge of standardized methods of handing over patients.

Attitude Assessment

First, residents were asked their opinion on the current non-standardized method of handing over patients implemented in the hospital from their most recently completed in-patient (ward/ICU) rotation. The results showed that 72.7% think the handovers are either fair or poor, while 27.3% think they were good or excellent.

Next, attitudes towards change to a standardized model of handover were assessed.

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Table 6. Attitudes towards change to a standardized model of handover

Questions	Agree or Strongly agree	Disagree or strongly disagree	Neutral
1. Do you think miscommunication can be successfully avoided	86.1%(211)	13.1%(32)	0.8%(2)
2. Do you think a standardized handover method using checklists is necessary?	71%(174)	15.9%(39)	13.1%(32)
3. Do you think handing over should be done only face-to-face	11.8%(29)	86.9%(213)	1.2%(3)
4. Do you think handover should be done only in written format	8.1%(20)	89.7%(220)	2%(5)
5. Do you think handovers should be done both verbally and in written format?	96.3(236)	0.8%(2)	7(2.8%)
6. Do you think handovers should be done in a quiet place where the active involvement of every participant is possible?	98.7%(242)	0%	1.2%(3)
7. Do you think training on standardized handing over of patients should be given to all residents?	84.8%(208)	4.8%(12)	10.2%(25)

This shows that the overall opinion towards changing to standardized handover done both in written format and face-to-face with possible training for all residents is 87.6%, which shows residents have a good attitude.

Practice Assessment

First, the possible frequency of problematic handovers was assessed. Residents were asked to answer questions based on their most recent in-patient attachments. By taking the percent of residents who answered sometimes, often, and always, 62.4% of residents indicated problematic handovers that were missing information, and 50.6% of residents were uncertain about management decisions because they lacked patient information.

Second, the characteristics and contents of handovers were assessed. It showed the most common ways of handing over patients (often and always), 58.3% of residents reported it being done in written format while 49.4% of residents reported face-to-face handover. Face-to-face handover with accompanying written documentation was reported by only 11.8% of the residents. Among those handovers done face-to-face, 58.3% of residents reported that the handovers were interrupted one or more times. Regarding the setting where handovers were conducted, 38.8% of residents reported it to be done in a quiet or private place, and 52% reported that the opportunity to ask or respond to questions was possible.

Regarding the content of the handover, residents reported the patient identifier (98%), principal reason for admission (93.4%), and current clinical condition of the patient (92.7%) as the most included data in the handover, whereas anticipated events for

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a period of coverage (19.6%), the name of the responsible senior physician (25.7%), and tasks to be completed (26.5%) were the ones that were least included.

Finally, the consequences of problematic handover was assessed using the resident's most recent in-patient attachments. The first question assessed difficulty in communicating with other caretakers, patients, or patient attendants as a result of receiving an incomplete handover. The results showed around 39% of residents reported having difficulty in providing accurate information to other healthcare providers, patients, or patient attendants as a result of receiving problematic handovers.

Second, the consequences of a problematic handover on the patient's well-being were assessed. The residents were asked to identify problems that resulted to the patient because of this poor handover from their most recent in-patient attachments. These problems were divided into major and minor harm.

Minor harm or limited clinical consequences were defined as a need for more frequent monitoring or transient discomfort, which may lead to prolonged hospitalization without significant organ dysfunction or worsening of clinical condition. Major or Significant Harm was defined as significant clinical consequences such as deterioration in clinical status, organ dysfunction, prolonged hospitalization, disability beyond discharge, or death.

Half of the residents reported some harm to the patient, with the majority being minor (49.8%), while 29% reported major harm that occurred because of being given a problematic handover. In conclusion, this table summarizes the findings of the practice assessment.

Table 13. Summary of Practice Assessment

Assessment component	Percent
Received complete handover	37.6%
No Problematic handover leading to uncertainty in decision-making	49.4%
Handovers being done in both verbal and written format	11.8%
Non-Interrupted handovers	41.7%
Conducted in a quiet place	38.8%
Conducted in an environment allowing for questions to be asked and responses to be made	52%
Able to provide information to patients, patients' attendants, and other health care providers	61%
No harm to the patient because of problematic handover	48.4%
Average Result	42.5%

With this summary, we can conclude that the current handover practice fails to fulfill the criteria for a good-quality patient handover.

Additional Analysis

Furthermore, the frequency of reports of harm done to patients was determined based on the residents' department. Additionally, the places (wards, ICU, ER) where the highest frequency of these problems occurred were assessed. The following two graphs summarize the findings

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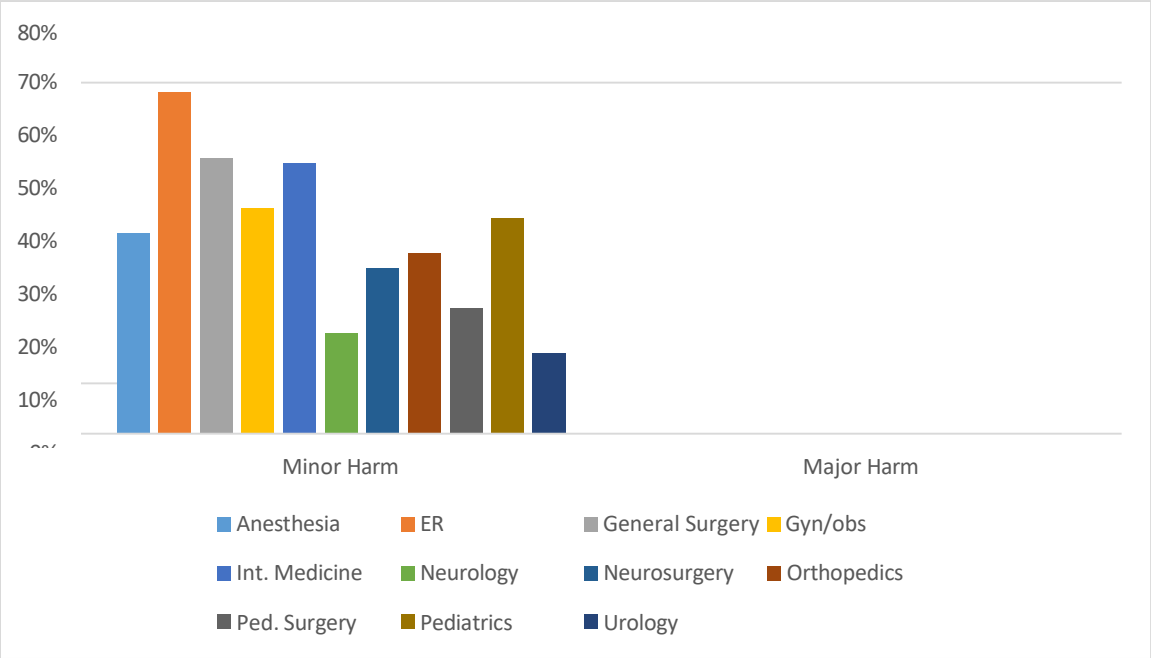

Fig 1. Frequency of harm to the patients reported by residents based on departments

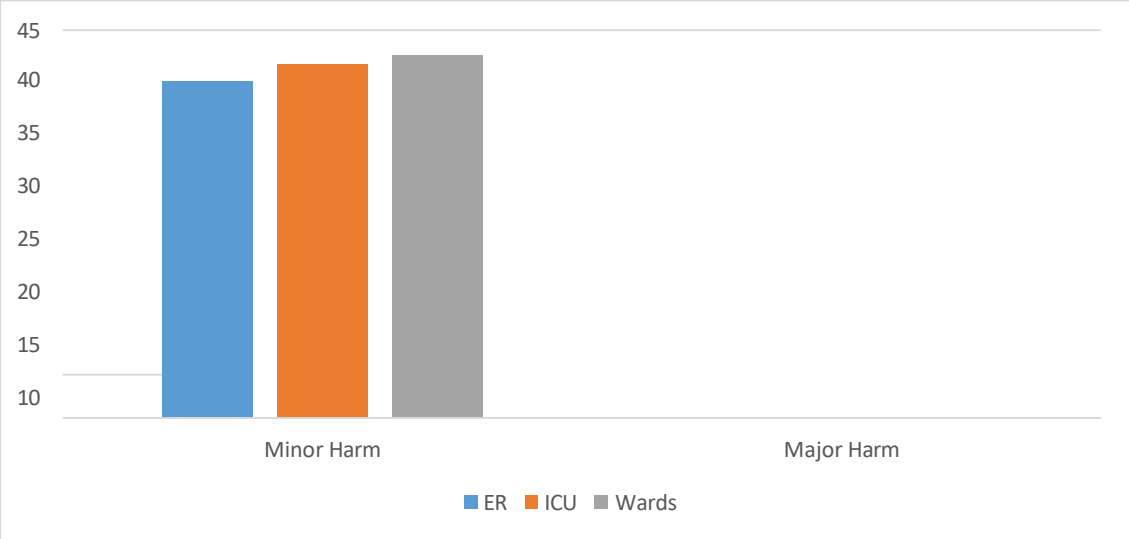

Fig 2. Places where the highest frequency of harm to the patient because of problematic handover

These results show that residents from the Emergency department reported the highest rates of minor and major harm to patients due to problematic patient handover. In addition, when all residents combined, the highest rate of major harm occurred during their attachments at the Emergency department, followed by the ICU. Minor harms were reported at comparable rates in all three places.

When it comes to handover characteristics, considering residents who answer often and always, the face-to-face handover was more common in general surgery and gynecology departments than in internal medicine, neurology, urology, and anesthesiology departments, where the written form of handover was commonly used. Even though the

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rate of handing over both in written and face-to-face format is low, it is practiced more in the neurology and internal medicine departments. Results are summarized in the next graph.

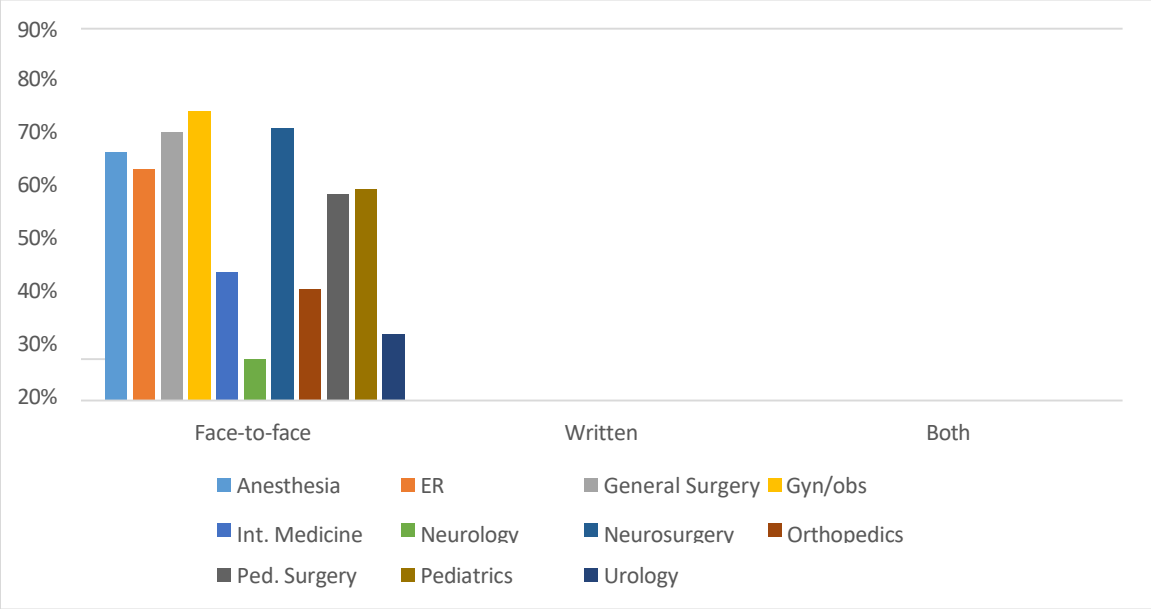

Fig 3. Characteristics of the handovers based on the different departments

Regarding the setting, the place reported to have the highest likelihood of an interrupted handover was the ICU, followed by the emergency and wards, as shown in the next figure.

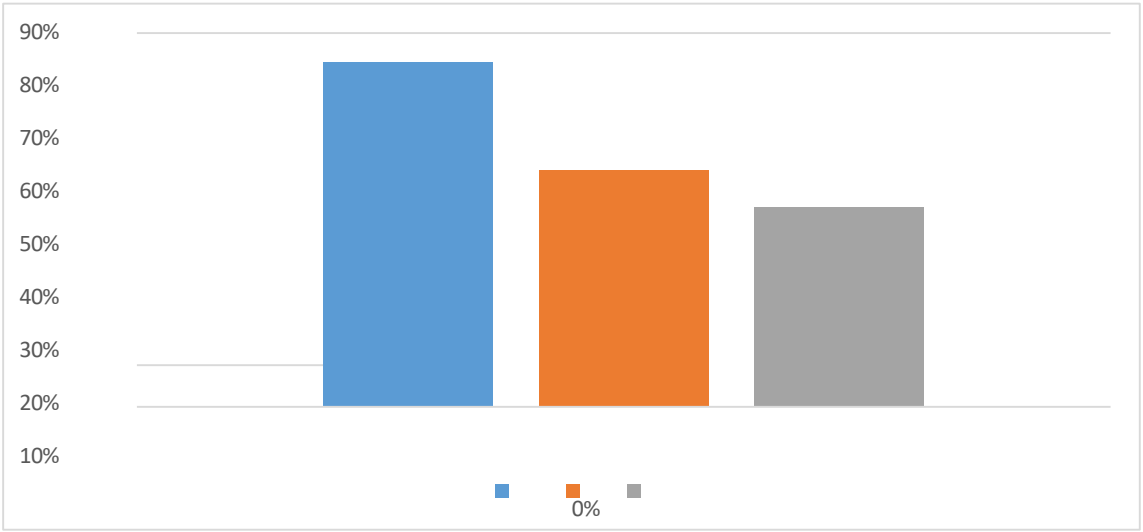

Figure 4. Setting where handovers were interrupted one or more times

4. Discussion

This research aimed to assess how much residents know about proper handover and their attitude towards it. In addition, it assessed and evaluated how the residents are currently handing over their patients and whether it fulfills the criteria required for a handover to be of good quality, as described in the literature review.

The study has included almost all departments in TASH that provide in-patient service except for

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oncology. This makes this study better when compared to a similar study done by Kitch at Massachusetts General Hospital (MGH) in 2006 concerning the quality and effects of handoffs during their most recent in-patient rotations,[8] which included only internal medicine and general surgery residents. However, the academic year of the residents was more or less similar (38.5%, 28%, 26.1%, 2.5%, and 2.5% of 1st, 2nd, 3rd, 4th, and 5th year, respectively). The last places the residents have attached are similar, except the current study included more residents whose recent attachment was at the ER. (46.9%, 20.3%, and 14.1% had last attachments at the ward, ICU, and ER, respectively).

Similar to the study in Indonesia on nurses in 2019,[39] this study showed that the study subjects are knowledgeable (n=245, 90.8%) about poor handovers and their consequences; however, they lack knowledge (n=245, 3.1%) about standardized methods of handing over patients.

Similarly, they showed a good attitude (n=245, 87.6%) towards the proper way of handover. They also felt positive about the possible training of all residents on these standardized methods. Their attitude towards the current method they use to handover patients was not good (n=245, 72.7%). This attitude differs from the study by Kitch in 2006, which showed only about a third (31.0%) of residents at MGH rated the overall quality of the handoffs they received on their most recent rotation as fair or poor. This discrepancy might be because most handovers occurred face-to-face in the Kitch study, and the setting was mostly in the wards.

Regarding practice, this study showed that many residents reported receiving incomplete handovers with omitted patient data (n=245, 62.4%). Similar to the prospective study done in Ontario, Canada, on handover patterns: an observational study of critical care physicians, the handovers had elements of all standardized communication schemes but with no consistent pattern. The physicians in this Canadian study followed objective blocks in only 45.9% of the opportunities. Again, similar to this study, most handover content consisted of recent and current patient status.

These handovers usually happened only in written format (n=245, 58.3%) or face-to-face (n=245, 49.4%) and only occasionally in both ways (n=245, 11.8%). Residents who reported that the handovers were interrupted one or more times were 58.3%, and only 38.8% reported that it was being done in a quiet place. Compared to the Kitch study, virtually all residents (93.6%) reported that face-to-face handoffs occurred most of the time or always. However, almost half of residents (43.6%) reported that these handoffs were rarely or never conducted in a quiet, private setting. More than one-third (36.6%) reported that the handoffs were most of the time or always interrupted one or more times.

Reporting on events from only their most recently completed rotation, 49.8% of residents in this study reported that at least one patient had suffered minor harm by a problematic handoff, and 29.4% reported that at least one patient had suffered major harm. These results differ from the study by Kitch, which showed a result where 59% of residents reported that one or more patients had been harmed during their most recent clinical rotation because of problematic handoffs, with 58.3% reporting minor harm and 12% reported that the harm had been major. The discrepancy in the rate of major harm results might be because the MGH study included only internal medicine and surgery residents. In contrast, this study included many other departments, including emergency medicine residents, who reported the highest frequency of

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harm.

The frequency of problematic handovers varied by location in the MGH study as well, similar to this study, the emergency was the place with the highest rate of poor handovers but contrary to this study, both medical and surgical residents reported intensive care units (ICUs) as the location with the lowest frequency.

Regardless, this study showed reports of a significant number of worse patient outcomes because of poor handover that cannot be ignored, similar to other studies.

Limitations

This study has certain limitations. First, more than one resident may have reported the same harm. For example, harm to a particular patient may have been noted by two resident and both may have reported it when they completed their surveys. Second, data on patient harm and its attribution to problematic handovers were based on the perceptions of resident physicians, and were not checked through either direct observation or a medical record review. Even though the definition of minor and major harm was provided to the respondent, it cannot be ascertained that the reported events actually caused patient harm or that the harm was attributable to a problematic handover. Hindsight bias and other factors may have led residents to incorrectly recall events or contributing factors, leading to an exaggeration of the frequency of harm; conversely, residents may also have failed to report events that an another observer would have detected. In addition some of the residents who participated in this study might have completed their in-patient attachments several weeks or months by the time they participated in this study which further adds to the recall bias. Finally, the exact time of the day the handovers took place or whether it was end of shift handover (occurring by the end of day or night shift) or end of attachment (eg. after one month of attachments) was not clearly specified. This factors may influence the relative quality of the handovers in the transmission of key clinical information. Finally a potential limitation to almost any survey is the potential for nonresponse bias. Although response rate was quite good, the distribution of residents across different departments was not even.

5. Conclusion

The results of this study suggest that residents in multiple departments of TASH perceive that patient harm from problematic handover is common. It also indicates that best-practice recommendations for handovers are not consistently being observed. It shows that though residents lack knowledge of standardized models, they are well aware of poor handovers and their consequences and have good opinions about changing the practice by incorporating standardized models and by taking training on proper handover methods. Miscommunication should be recognized as preventable and amenable to process improvement. The culture should change from viewing handover-related harm as inevitable to where error minimization is possible. Second, training programs and hospitals should create awareness that handovers must be conducted in quiet settings and provide such settings. Others should also be trained to limit interruptions. It shall be conducted to include an opportunity and time for the recipient to ask questions and respond. The variability observed in the content of handovers and experts' views on best practices suggests that implementing a standardized handover format may be important. Finally, further detailed investigations are needed into the settings and mechanisms by which problematic handovers lead to harm, along with interventional studies comparing standardized and non-standardized handover methods. Ongoing institutional efforts to improve the

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safety and care of hospitalized patients are vital.

Abbreviation

AAU: Addis Ababa University
TASH: Tikur Anbessa Specialized Hospital
IMR: Internal Medicine resident
EMR: Emergency Medicine resident
Gyn/Obs: Gynecology and obstetrics
ICU: Intensive Care Unit
SBAR: Situation-Background-Assessment-Recommendation
I-PASS: Illness severity, Patient information, Action list, Situational awareness and contingency plans, and Synthesis by receiver
ANTICipate: Administrative Data; New clinical information; Tasks to be performed; Illness severity; and Contingency plans for changes.
SIGNOUT: Sick or DNR, Identifying data, General hospital course, New events of the day, Overall health status/clinical condition, Upcoming possibilities with plan, Tasks to complete overnight with plan, rational.
US: United States
UK: United Kingdom

Author Contributions

Eyosias Lemma and Henok Baharu conceived and designed the study, developed the survey tool, and supervised the overall project.
Ashenafi Tesfaye, Dereje Nigatu, and Atiklet Zerihun coordinated data collection, performed statistical analysis, and drafted the initial manuscript.
Liban Dida, Muluken Alemayehu, Kebron yihenew, and Ashenafi Negash contributed to the refinement of the survey instrument, facilitated data acquisition, and assisted with interpretation of findings.
All authors reviewed and approved the final version of the manuscript and agreed to be accountable for all aspects of the work.

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Conflict of Interest

There is no conflict of interest.

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